

WORKING TOGETHER FOR ORCHID CONSERVATION – – THE NATIONAL BOTANIC GARDENS, GLASNEVIN AND BELIZE BOTANIC GARDENS

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Introduction

The National Botanic Gardens, Glasnevin (NBBG) and the Belize Botanic Gardens (BBG) have been involved in Belizean orchid research since 1997. Staff from NBBG had travelled to Belize on two prior occasions with the purpose of collecting living specimens of orchids, bromeliads and cacti, along with seed of other plants to add to the existing glasshouse collections at the Gardens. During the expedition of 1996 the Glasnevin team met Ken duPlooy who had gathered a substantial orchid collection for what was to become Belize Botanic Gardens the following year. The 10 years of collaboration between the two gardens has substantially increased the knowledge of Belize's orchid flora and improved the capacity of BBG to identify and cultivate the country's native orchids.

Knowledge of the orchid flora

The knowledge of the orchid flora of Belize has been amassed from many expeditions by various institutions, both native and foreign, over the last century. The most comprehensive documents on the subject include *Orchids of Guatemala* (Ames & Correll 1952), *Supplement to Orchids of Guatemala and British Honduras* (Correll 1963), *A new species and new records of Orchidaceae for Belize* (Adams & Cribb 1985), *An annotated list of orchids of Belize* (Catling & Catling 1988) and *Native orchids of Belize* (Adams et al. 1995). The latest publication to list the orchids that occur in Belize is a *Checklist of the vascular plants of Belize* (Balick et al. 2000). This and the *Native orchids of Belize* differ little in the species

listed other than the former publication includes *Cattleya skinneri* Bateman and *Oeceoclades maculata* (Lindl.) Lindl., excludes *Pleurothallis barbulate* Lindl. and some nomenclature changes. Otherwise by 2000 the list of species included for Belize totalled 279 species. For the purpose of this paper and various statistics within, the authors accept that 279 is the figure of the orchid flora in 2000. Further nomenclature will follow the World Checklist of Monocotyledons and any exceptions will be noted.

Additional knowledge of the orchid flora

In 2001 the results of the almost yearly joint expeditions had accumulated and were published in *Additions to the orchid flora of Belize, Central America* (Sayers & duPlooy 2001) bringing the total orchid species recorded to 298. The additions included a recently described *Pleurothallis*, *Pleurothallis duplooyi* Luer & Sayers from a collection in the Toledo District (Luer 2001).

The joint garden expeditions have concentrated on this area as over 65% of Belize's orchid species can be found in this southernmost district. Not surprisingly, the majority of the new records have occurred in the Toledo district, especially around the not easily accessed Little Quartz Ridge. Toledo's orchid rich forests are home to most of the recently published records like *Cochleanthes flabelliformis* (Sw.) R.E. Schult., *Cranichis muscosa* Sw., *Lepanthopsis floripecten* (Rchb.f.) Ames, *Maxillaria cobanensis* Schltr., *Macroclinium paniculatum* (Ames & C. Schweinf.) Dodson, *Platystele ovatilabia* (Ames & C.

Schweinf.) Garay, *Pleurothallis deregularis* (Barb. Rodr.) Luer and *Specklinia spectrilinugis* (Rchb.f.) Pridgeon & M.W. Chase (Sayers & duPlooy 2003). Recently we have verified *Platystele pedicellaris* (Schltr.) Garay and *Scaphosepalum microdactylum* Rolfe, both collected in the Columbia River Forest Reserve of Toledo.

Platystele pedicellaris (Schltr.) Garay, Orquideologia 9 (2):120. 1974. *Pleurothallis pedicellaris* Schltr.

Columbia River Forest Reserve, Toledo District; epiphytic in wet broadleaf forest, 24/1/2004, B. Sayers 04/1241.

Scaphosepalum microdactylum Rolfe, Bull. Misc. Inform. Kew. 1893: 335.

Pueblo Viejo, Toledo District, epiphytic in wet riverine forest, 16/4/1998, B. Sayers 98/590.

No less fascinating are the high altitude, quasi-mist forests of Mount Margaret in the Cayo District, which, over the years has been the location for many of the new records such as *Acianthera johnsonii* (Ames) Pridgeon & M.W. Chase, *Dresslerella powellii* (Ames) Luer and *Kegeliella atropilosa* L.O. Williams and A.H. Heller (Sayers & duPlooy 2003). On the same small mountaintop we have recently collected *Dichaea trulla* Rchb.f. and *Stelis convallaria* (Schltr.) Pridgeon & M.W. Chase.

Dichaea trulla Rchb.f., Beitr. Orch. Centr.-Am. 104. 1866. *Epithecia trulla* Schltr., *Dichaeopsis trulla* Schltr.

Mount Margaret, Cayo District, epiphytic in quasi-mist forest, 2/2/2004, B. Sayers 04/1250.

Stelis convallaria (Schltr.) Pridgeon & M.W. Chase Lindleyana 16(4): 262 2001. *Pleurothallis convallaria* Schltr.

Mount Margaret, Cayo District; epiphytic in quasi-mist forest, 1/2/2004, B. Sayers 04/1244.

Herbarium specimens of orchids collected in Belize are an additional source of information. Indeed when we first encountered the leafless *Campylocentrum poeppigii* (Rchb.f.) Rolfe we had no idea that a specimen collected by William A. Schipp (Schipp 339) housed in Missouri existed. This specimen had escaped the attention of documenters of the orchid flora for many decades. Robert Dressler's work on

Sobralia has revealed a specimen of the *S. amparoana/bradeorum/warscewiczii* complex collected in the Stann Creek District.

Two other taxa worth a mention are a species of *Pelexia* and *Scaphyglottis*. The *Pelexia* was first encountered in 1997, on the first visit to the Little Quartz Ridge area of the Southern Toledo District. The rosette of deep purple leaves was collected but it failed to adapt easily to cultivation and did not thrive. It was not until 2004 that the plant was successfully flowered and photographs and a specimen taken. Two names have been suggested, *Pelexia callifera* (C. Schweinf.) Garay and *Pelexia gutturosa* (Rchb.f.) Garay. The former has a distribution of northern South America whilst the latter is Central American. The specimen has yet to be deposited in a suitable herbarium but we expect that the latter is the correct name for the taxon. The other confusing species is the *Scaphyglottis*. Tentative efforts at identification have placed it close to *Scaphyglottis tenella* L.O. Williams, a species recorded from Guatemala, Costa Rica, Nicaragua and Panama. Again the specimen has yet to be examined by someone with a familiarity for the genus, and it could possibly be undescribed (R. Dressler, pers comm.).

Distribution and conservation information

Even though the distribution of *Pelexia* is taken into account for the tentative determination of the unnamed specimen, Belize has a element of it's flora that does not occur in neighbouring countries. *Native orchids of Belize* points to two species, *Maxillaria discolor* (Lodd. ex Lindl.) Rchb.f. and *Koellensteinia tricolor* (Lindl.) Rchb.f. The former is found outside Belize in Nicaragua, French Guyana, Guyana, Suriname, Venezuela, Bolivia, Peru and Brazil whilst the latter in Guyana, Peru and Brazil. Certain of the new records show this disjunctive distribution. Outside of Belize, *Dresslerella powellii* (Ames) Luer is only known to occur in Panama and *Phloeophila peperomioides* (Ames) Pridgeon & M.W. Chase only in Costa Rica. It may be the case that further investigations in neighbouring countries will reveal the presence of these species.

Similarly, exploration in Belize has proven wider

distributions of some orchids currently known to occur in only certain districts. Upon each successive expedition to the northern districts of Corozal and Orange Walk, orchids previously not recorded for these districts are found indicating a need for further research. The NBBG and BBG have expanded the knowledge of the Belizean orchid flora, not alone in numbers but in quantity and location also.

To be effective, conservation efforts need to have an information base – we need to know what needs to be conserved before we can make suitable efforts to do so. The two gardens are dedicated to the conservation of Belize's orchid flora not only in filling this need but plans are also being put in place to propagate sensitive species from seed.

At first glance it would seem that Belize's orchids would scarcely need protection. A huge portion of the country, 44% (1.2 million hectares) of land and sea are under protective status. Belize is also party to International conservation conventions such as the United Nations Convention on Biological Diversity and the Convention for International Trade in Endangered Species of Fauna and Flora. However there are significant threats ranging from individuals involved in exporting wild collected orchids to private collectors, to lack of enforcement of laws protecting orchids, to the ever growing threat of climate change.

Even the protected status of the country is also a dubious comfort as recently 500 acres of Cayo's San Antonio National Park was de-reserved, in Sstann Creek, Mayflower Bocawina National Park was de-reserved by 400 acres and in Toledo an International Oil Company has been given permission to begin

seismic testing and subsequent oil drilling in the Sarstoon/Temash National Park.

The two Gardens, in their commitment to orchid conservation will continue their field research in Belize. To assist in promoting the orchid flora among native Belizeans and the substantial amount of visitors to the country, they are producing a small format guide to some of the more notable species of orchids. Recent developments at NBBG has seen the establishment of an orchid propagation laboratory where seedlings will be germinated to bulk up *ex situ* collections and act as a source of material for the future.

LITERATURE CITED:

- Ames, O. & D.S. Correll. 1952. *Orchids of Guatemala and Belize*. Dover Publications, New York.
- Adams, B.R. & P.J. Cribb. 1985. A new species and new records of Orchidaceae for Belize. *Kew Bull.* 40 (3): 635-642.
- Catling, P.M. & V.R. Catling. 1988. An annotated list of orchids of Belize. *Orquidea (Méx)* 11: 85-102.
- Luer, C.A. 2001. Miscellaneous new species in the Pleurothallidinae. *Rev. Soc. Bol. Bot.* 3 (1/2): 48 Santa Cruz
- Sayers, B. & H. duPlooy. 2003. Additions to the orchid flora of Belize, Central America. *Lankesteriana* 8: 1-3
- Balick, M.J., M.H. Nee & D.E. Atha. 2000. Checklist of the vascular plants of Belize with common names and uses. *Mem. New York Bot. Gard.* 85.
- McLeish, I., N.R. Pearce & B.R. Adams. 1995. *Native orchids of Belize*. AA Balkema Publ., Rotterdam and Brookfield.
- World Checklist of Monocotyledons (2006): The Board of Trustees of the Royal Botanic Gardens, Kew. Published on the Internet, <http://www.kew.org/wcsp/monocots>, accessed October 30, 2006.

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Heather duPlooy is the Curator of Belize Botanic Gardens. Heather took over management of the gardens, from her father, garden founder, Ken duPlooy in 2000. Her major achievements since that time have been the development of public and youth education programs in sustainable and organic horticulture and conservation awareness run by the gardens. She is actively involved in developing the organic industry of Belize through her work with the Belize Organic Producers Association and is dedicated to continuing her father's vision of making the Belize Botanic Gardens a useful resource for the country.

Brett Adams has been working at Belize Botanic Gardens since 2002. He is currently one of two Foremen that oversee horticulture and collections at the Garden. He also developed and manages the Garden's information system for plant records.